

APPLICATION

Of

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For

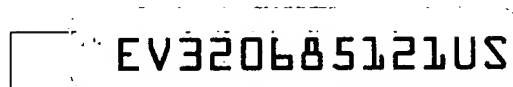
UNITED STATES LETTERS PATENT

On

FORM SUPPORT FOR SUPPORTING A DISPOSABLE MOLD FORM

Sheets of Drawings: 2 (Formal)

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TITLE: FORM SUPPORT FOR SUPPORTING A DISPOSABLE MOLD FORM

## **BACKGROUND OF THE INVENTION**

### 5    FIELD OF THE INVENTION:

This invention relates generally to the construction of swimming pools and the like and, more particularly, to a form support for supporting a disposable mold form for molding a concrete coping along the upper edge of a swimming pool.

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### DESCRIPTION OF RELATED ART:

In constructing a concrete swimming pool, the commonly followed practice is to first build the upwardly extending concrete side walls and bottom wall therefor usually as an integer and  
15 by a technique known as the gunite process. After the concrete side walls have at least partially cured, a water impervious layer, such as tile 20, is installed over the concrete.

Once the tile 20 has been installed, concrete coping is formed on the upper portion of the concrete sidewall, known as the bond beam. The currently preferred method of forming the  
20 concrete coping involves the use of a disposable mold form is bonded to the tile 20 for forming the. This process is described in detail in Stegmeier, U.S. 3,967,422, which is hereby incorporated by reference in full.

To support the disposable mold form, it is common to include a tie wire that fits through the disposable mold form and is attached to an anchor, such as a nail driven into the concrete side wall. The tie wire typically includes a weakened portion such as a notch that enables the tie wire to be broken and removed from the coping once the coping has at least partially cured.

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The problem with this approach is that the tie wire is sometimes not removed until the coping has entirely cured, at which point the coping often tends to bind to the tie wire and thereby prevent it from being removed from the coping. If a portion of the tie wire remains near the surface of the coping, the remnant will corrode and expand, which in turn spalls the surface  
10 of the coping.

This problem has been addressed in the past with only partial success. Deason, U.S. 4,387,877, for example, teaches a device that is adapted to overcome this problem. The Deason device includes a continuous strip of semirigid material and an elongate support  
15 member for maintaining the strip of material in position against the upper portion of the pool wall. The continuous strip of semirigid material includes a facing surface which is positioned below the horizontal pool edge against the upper portion of the pool wall; a front form surface extending upwardly from the facing surface to form a contoured surface for temporarily supporting concrete poured above the horizontal edge onto the bond surface of  
20 the pool, the concrete forming a pool deck and coping thereof contiguous to the pool wall when set; and, a back wall surface generally opposed to the front form surface and facing the central area of the pool. The elongate support member passes through the continuous strip of

semirigid material and is secured to the bond surface of the pool to maintain the continuous strip in position against the pool wall.

While the Deason device is functional, it is expensive, requiring two molded plastic parts. It  
5 is critical that this type of product be both simple to use and also inexpensive to manufacture.

The prior art teaches a tie wire form support. However, the prior art does not teach a tie wire  
that is surrounded by an elongate tube that prevents the cement coping from binding to the tie  
wire. The present invention fulfills these needs and provides further related advantages as  
10 described in the following summary.

### **SUMMARY OF THE INVENTION**

15 The present invention teaches certain benefits in construction and use which give rise to the  
objectives described below.

The present invention provides a form support for supporting a disposable mold form  
mounted on a bond beam for forming a cement coping. The form support includes a tie wire  
20 and an elongate tube. The tie wire has a head, an elongate midsection, and an end portion.  
The elongate midsection and the end portion are separated by a weakened portion. The tie  
wire is adapted to be positioned through the disposable form mold such that the head abuts  
the disposable mold form, the elongate midsection extends through the disposable mold

form, and the end portion extends over the bond beam. The elongate tube is shaped to fit around the tie wire such that the elongate tube extends from the head to the vicinity of the weakened portion.

- 5 A primary objective of the present invention is to provide a form support having advantages not taught by the prior art.

Another objective is to provide a form support that includes a tie wire that is adapted to support the disposable mold form so that the weight of the concrete coping, once it has been  
10 poured, does not push the disposable mold form out of shape, causing the concrete coping formed to be misshapen.

A further objective is to provide an elongate tube that prevents the hardening concrete coping from adhering to the elongate midsection of the tie wire.

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Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

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## BRIEF DESCRIPTION OF THE DRAWING

The accompanying drawings illustrate the present invention. In such drawings:

5       FIGURE 1 is an exploded perspective view of a disposable mold form adapted to be mounted on a bond beam of a swimming pool, and a form support used to support the disposable mold form, the form support including a tie wire and an elongate tube;

FIGURE 2 is a side elevational sectional view thereof once the tie wire has been operably  
10       positioned through the elongate tube and the disposable mold form, and anchored to a nail;

FIGURE 3 is a side elevational sectional view of the disposable mold form and the form support once a cement coping has been poured; and

15       FIGURE 4 is a side elevational sectional view illustrating how the tie wire is broken and removed, with the aid of the elongate tube, from the at least partially cured cement coping.

## DETAILED DESCRIPTION OF THE INVENTION

The above-described drawing figures illustrate the invention, a form support **10** for supporting a disposable mold form **22** mounted on a bond beam **14** for forming a cement coping **26** during the construction of a swimming pool. The form support **10** includes a tie wire **30** and an elongate tube **40**, which are described in greater detail below

FIG. 1 illustrates how the disposable mold form **22** is mounted on the bond beam **14**, which is formed by the upwardly extending side walls of the swimming pool. The bond beam **14**, and the entirety of the upwardly extending side walls, may be formed in any conventional manner, and ordinarily are fabricated of concrete and integral with a bottom wall (not shown). The generally vertical or upwardly extending walls are enlarged somewhat at their upper ends to form the bond beam **14** which is rather standard practice. The bond beam **14** has an upper edge **16** and an inner face **18** or surface. The inner face **18** has a water-impervious finish **20** secured thereto. The water-impervious finish **20** may be ceramic tile attached to the inner face **18** in any usual manner as, for example, by means of adhesive or concrete bed mud, or it may be formed with another coating known in the art. As stated hereinbefore, as respects these features and characteristics of the pool, they may be completely conventional and per se form no part of the present invention.

The disposable mold form **22** is secured to the bond beam **14** adjacent the upper edge **16**, along with a plurality of other mold forms (not shown). The disposable mold form **22** is

preferably integral from end to end thereof, is elongated longitudinally, lightweight and may be formed of a material having myriad interstitial spaces therein as, for example, one of the synthetic plastics such as the plastic material sold under the trademark Styrofoam®. The disposable mold form **22** has a surface portion **24** configured in the finished shape to be imposed thereby upon the cement coping **26** molded thereagainst, as shown in Figs. 3 and 4. The configured surface portion **24** may have a reversely oriented, somewhat C-shaped disposition in cross section so that the coping **26** has slightly rounded top and bottom edges; however, those skilled in the art may devise various shapes, contours, and textures so that the coping **26** formed will be aesthetically pleasing.

The disposable mold form **22** further has an attachment portion **28**, which faces in the same direction as that of the configured surface portion **24**, and is adapted to be attached to the tile **20** with a tape strip **29**. The tape strip **29** may be a double-sided pressure-sensitive tape adhesively secured along its other side to the finish of the bond beam **14**. The tape strip **29** may be substantially non-stretchable and, for example, might be a fiberglass tape or an adhesive transfer tape. The disposable mold form **22** may be fabricated in the configuration shown in any suitable manner as, for example, by being machined from elongated bar stock or, depending upon the particular material employed, might be extruded, foamed-in-place or otherwise molded.

In use of the disposable mold form **22** and in providing the concrete coping **26** along the upper edge **16** of a swimming pool, the inner face **18** of the of the bond beam **14** is first



equipped with the tile **20**, as shown in Fig. 1. The disposable mold form **22** is provided with a tape strip **29** along the attachment portion **28**, and such strip may be attached at any time (such as during production of the disposable mold form **22**, or later, at the construction site) by pressing one of the pressure-sensitive adhesive surfaces of the strip against the appropriate surface of the attachment portion **28**. The tape strip **29** could be secured to the section during manufacture, especially where adhesive transfer tapes are employed or where the opposite face of the tape strip **29** has the adhesive thereon protected by a removable cover or coating of some type.

The disposable mold form **22** has the opposite pressure-sensitive adhesive face of the tape strip **29** pressed against the tile **20** with the configured surface portion **24** of the section projecting above the upper edge **16** of the pool wall. As many of the disposable mold forms **22** are used as is necessary to provide a continuous form about the side walls of the pool, and the sections are abutted along their adjacent edges.

As shown in Fig. 1, the tie wire **30** has a head **32**, an elongate midsection **34**, and an end portion **36**. The head **32** has a greater width or cross section than the remainder of the tie wire **30**, and functions to supportingly abut the disposable mold form **22**. The head **32** may be formed from a bent portion of the tie wire **30** itself, as shown, or it may be provided by another component that is attached to the tie wire **30**.

Fig. 2 illustrates how the disposable mold form **22** is pierced with the tie wire **30**, which is anchored for supporting the disposable mold form **22**. The tie wire **30** is adapted to support the disposable mold form **22** so that the weight of the concrete coping **26**, once it has been poured, does not push the disposable mold form **22** inwardly towards the center of the swimming pool, causing the concrete coping **26** formed to be misshapen.

The elongate midsection **34** and the end portion **36** are preferably formed by a metal wire, although other suitable materials and elongate shapes may be used, and such alternatives should be considered within the scope of the term "tie wire." The elongate midsection **34** and the end portion **36** are separated by a weakened portion **38**, formed by a cutting, notching, perforating, or otherwise weakening of the tie wire **30** at the appropriate location. The tie wire **30** is adapted to be positioned through the disposable form mold, as described above, such that the head **32** abuts the disposable mold form **22**, the elongate midsection **34** extends through and at least partially out of the disposable mold form **22**, and the end portion **36** extends over the bond beam **14**.

As shown in Figs. 1 and 2, the form support **10** further includes an elongate tube **40** shaped to fit around the tie wire **30** such that the elongate tube **40** extends from the head **32** to the vicinity of the weakened portion **38**. The elongate tube **40** is preferably made of plastic such as polyethylene or polypropylene, although it could be made of any material that resists binding with concrete once it has cured.

Finally, the form support **10** includes a means for anchoring **42** the end portion **36** of the tie wire **30**. In one embodiment, the means for anchoring **42** is a nail **42**. The nail **42** is driven into the bond beam **14** and the end portion **36** is wrapped around the nail **42** or otherwise fastened to it. In alternative embodiments, the means for anchoring **42** may be any suitable anchor, including screws, stakes, weights, or any other anchoring, fastening, or bonding mechanisms known in the art.

As shown in Fig. 3, when all of the disposable mold forms **22** are in place, a moldable mass of amorphous concrete is then spread against the configured surface portion **24** of each section, as shown in Figs. 3 and 4, so that such configured sections impose the desired finished shape upon the coping **26**. When the concrete mass defining the coping **26** has cured, at least to the point that it is self-sustaining, the disposable mold form **22** is ready to be stripped from its adhesive attachment to the bond beam **14**.

As shown in Fig. 4, the form support **10** must first be removed to enable the stripping of the disposable mold form **22**. The head **32** of the tie wire **30** is grasped and twisted within the elongate tube **40**, thereby breaking the weakened portion **38**. The elongate tube **40** keeps the elongate midsection **34** of the tie wire **30** from contacting and bonding with the concrete coping **26**. Once broken, the head **32** and the elongate midsection **34** of the tie wire **30**, and the elongate tube **40**, may be removed from the concrete coping **26** and the disposable mold form **22**, leaving the disposable mold form **22** free to be stripped from the bond beam **14** and discarded.

While in the foregoing specification an embodiment of the invention has been set forth in considerable detail for purposes of making a complete disclosure thereof, it will be apparent to those skilled in the art that numerous changes may be made in such details without  
5 departing from the spirit and principles of the invention.